REMARKS / ARGUMENTS

I. General Remarks and Disposition of the Claims.

Applicants respectfully request that the Examiner reconsider the application in view of the following remarks.

In this Response, claims 1-18 are pending. Claims 1 and 5 were amended previously. Claim 4 was cancelled previously. Claims 19-59 were cancelled previously in response to a restriction requirement. No amendments are made herein, and therefore, the claims have not been presented. *See Manual of Patent Examining Procedure* § 714 (8th ed., rev. 2, May 2004) (hereinafter "MPEP").

II. Claims 1-3, 6-7, and 17 Are Not Anticipated by *Scapanski.*

The Examiner stated: "Claims 1-3, 6-7 and 17 are rejected under 35 U.S.C. 102(a) as being anticipated by Scapanski (6028113) [hereinafter "*Scapanski*"]." (Office Action at 2.) Applicants respectfully traverse.

With respect to *Scapanski*, the Examiner has stated:

> In reference to claims 1-3, Scapanski teaches a method of cleaning a hard surface by spraying a cleaning composition. Scapanski teaches dissolving a solid sanitizing composition with fresh water and spraying onto a surface (Abstract, Fig. 1, col. 4, lines 55-60, col. 7, lines 20-25, col. 10, lines 30-50, Example 9, col. 9, lines 5-10). In reference to claims 6-7, refer to col. 10, lines 5-15. In reference to claim 17, refer to col. 7, lines 30-31.

(Office Action at 2.) To anticipate Applicants' invention, *Scapanski* must teach every element of the invention. MPEP § 2131. Applicants respectfully submit that *Scapanski* does not teach every element recited in claims 1-3, 6-7, and 17 as amended.

Scapanski does not teach methods comprising "a cleaning fluid comprising . . . degradable particles" as recited in independent claim 1. Rather, *Scapanski* teaches "an aqueous solution of antimicrobial compounds" (*Scapanski* col. 3, ll. 2-3), which does not comprise particles. *Scapanski's* solution consists of a ***dissolved*** solid sanitizing composition. (*Scapanski* col. 2, ll. 59-67-col. 3, ll. 1-5; col. 4, ll. 8-10; col. 10, ll. 41-51; col. 12, ll. 55-67.) As taught by *Scapanski*, the solution formed cannot consist of degradable particles, as required by claim 1, because *Scapanski's* solution is formed when a "spray of water ***dissolves*** a portion of the sanitizing composition to form an ***aqueous solution*** of antimicrobial compounds." (*Scapanski*

col. 3, ll. 1-3 (emphasis added).) Thus, the solution formed by *Scapanski* is an aqueous solution of a dissolved compound, which is not a "fluid . . . comprising degradable particles" as required by claim 1.

In the "Response to Arguments," the Examiner states:

> Applicant argues that Scapanski teaches an all liquid solution and that the embodiment directed to the use of the tablets is not preferred. Scapanski teaches tablets that dissolve slowly in water. This is not different from applicant's specification which teaches in paragraph 19 that "degradable particles degrade slowly over time. Applicant's arguments are unpersuasive since applicant is relying on preferred embodiments and not on the teachings of the reference as a whole. Col. 9, lines 10-13 teaches using pure powders. Col. 10, lines 25-29 teaches using a powdered form to form a semi-liquid mixture.

(Office Action at 5.)

Applicants respectfully disagree with the Examiner's characterization of *Scapanski*. The fact that *Scapanski* may teach tablets that dissolve in water is irrelevant because *Scapanski* does not teach a fluid that comprises tablets. Rather, *Scapanski's* tablets are dissolved to form an aqueous solution, which, as discussed above, does not comprise degradable particles. Moreover, the pure powders and semi-liquid mixture referred to by the Examiner are discussed in the context of teaching how to form solid sanitizers (*Scapanski* col. 8, 57-65; col. 10, ll. 30-31) and have nothing to do with the fluid *Scapanski* forms, which nonetheless does not comprise degradable particulates.

Therefore, Applicants respectfully assert that claim 1 is not anticipated by *Scapanski* because *Scapanski* does not teach every element of the invention as required by the MPEP § 2131. Claims 2-3, 6-7, and 17 depend either directly or indirectly from independent claim 1. All these dependent claims, which include all the limitations of claim 1, are allowable for at least the reasons cited above with respect to independent claim 1. Accordingly, Applicants respectfully request withdrawal of this rejection with respect to claims 1-3, 6-7, and 17 and further request the timely issuance of a Notice of Allowance for these claims.

III. Claims 1-3, 5-13, and 17 Are Not Anticipated by *Houghton*.

The Examiner stated: "Claims 1-3, 5-13 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Houghton et al. (EP0510762A2) [hereinafter "*Houghton*"]." (Office Action at 2.) Applicants respectfully traverse.

With respect to *Houghton*, the Examiner states:

> Houghton et al. teach a non-aqueous liquid cleaning composition comprising a particulate solid phase for cleaning hard surfaces or warewashing (Abstract, p. 4). The limitations of jetting would inherently be met since Houghton teaches using the composition for warewashing by mechanical means and automatic dishwashing machines perform jetting of the cleaning composition on the surface of the dishware. In reference to claim 5, refer to page 2. In reference to claim 6, refer to page 9, lines 30-32. In reference to claim 7, refer to page 9, lines 30-35. In reference to claims 8-9, refer to page 4, lines 5-10. In reference to claims 10-13, refer to page 8, lines 25-28. In reference to claim 17, refer to page 8, lines 53-54.

(Office Action at 2-3.) To anticipate Applicants' invention, *Houghton* must teach every element of the invention. MPEP § 2131. Applicants respectfully submit that *Houghton* does not teach every element recited in claims 1-3, 5-13, and 17 as amended.

Houghton does not teach methods comprising "a cleaning fluid comprising . . . degradable particles" as recited in independent claim 1. Rather, *Houghton* teaches a "composition comprising a particulate solid phase which is dispersed in a non-aqueous liquid phase, and a polymer." (*Houghton* at 2, ll. 24-25.) Nowhere does *Houghton* teach or suggest that the particulate solid phase is degradable. In fact, the only example of a solid particle provided by *Houghton* is Socal®U3, "a high surface area calcium carbonate" (*Houghton* at 10, ll. 9 & 21), which is not degradable—calcium carbonate has a solubility product constant (K_{sp} at 25°C) of 3.36×10^{-9} (*CRC Handbook of Chemistry and Physics* 8-119 through 8-120 (David R. Lide, ed., CRC Press 84th ed., 2003)).

Therefore, Applicants respectfully assert that claim 1 is not anticipated by *Houghton* because *Houghton* does not teach every element of the invention as required by the MPEP § 2131. Claims 2-3, 5-13, and 17 depend either directly or indirectly from independent claim 1. All these dependent claims, which include all the limitations of claim 1, are allowable for at least the reasons cited above with respect to independent claim 1. Accordingly, Applicants

respectfully request withdrawal of this rejection with respect to claims 1-3, 5-13, and 17 and further request the timely issuance of a Notice of Allowance for these claims.

IV. Claims 1, 8, and 15-16 Are Not Anticipated by *Banerjee.*

The Examiner stated: "Claims 1, 8, and 15-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Banerjee et al. (US2003/0188766A1) [hereinafter "*Banerjee*"]." (Office Action at 3.) Applicants respectfully traverse.

With respect to *Banerjee*, the Examiner has stated:

> Banerjee et al. teach cleaning a wafer surface by simultaneously jetting liquid in combination with carbon dioxide particles unto a surface (Fig. 1, paragraphs 17, 21, and 24). In reference to claim 8, refer to paragraph 17. In reference to claim 15, refer to paragraph 21. In reference to claim 16, refer to col. 3, lines 1-5.

(Office Action at 3.) To anticipate Applicants' invention, *Banerjee* must teach every element of the invention. MPEP § 2131. Applicants respectfully submit that *Banerjee* does not teach every element recited in claims 1, 8, and 15-16 as amended.

Banerjee does not teach methods comprising "a cleaning fluid comprising . . . degradable particles" as recited in independent claim 1. Rather, *Banerjee* teaches the use of "a high vapor pressure liquid" (*Banerjee* at 2, ¶ 16), which does not contain any particles. The only particles *Banerjee* discloses are "solid CO_2 snow particles entrained in a gaseous CO_2 stream." (*Banerjee* at 2, ¶ 21.) Nowhere does *Banerjee* teach or suggest that particles are present in the liquid.

Therefore, Applicants respectfully assert that claim 1 is not anticipated by *Banerjee* because *Banerjee* does not teach every element of the invention as required by the MPEP § 2131. Claims 8 and 15-16 depend either directly or indirectly from independent claim 1. All these dependent claims, which include all the limitations of claim 1, are allowable for at least the reasons cited above with respect to independent claim 1. Accordingly, Applicants respectfully request withdrawal of this rejection with respect to claims 1, 8, and 15-16 and further request the timely issuance of a Notice of Allowance for these claims.

V. Claims 1-3, 5, 14, and 18 Are Not Obvious Over *MacVitte*.

The Examiner stated: "Claims 1-3, 5, 14, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacVitte et al. (3272650) [hereinafter "*MacVitte*"]." (Office Action at 4.) Applicants respectfully traverse.

With respect to *MacVitte*, the Examiner has stated:

> In reference to claims 1-2, MacVitte et al. teach a method of cleaning an interior surface of a conduit by contacting with a liquid suspension comprising polymer particles (i.e. polycarbonate, col. 1, liens 35-42, col. 2, lines 7-13).

(Office Action at 4-5.) To establish a *prima facie* case of obviousness, *MacVitte* must teach or suggest each element of the claimed invention. MPEP § 2142. Applicants respectfully note that *MacVitte* does not contain any suggestion or motivation to use degradable particles. The Examiner has provided no evidence or finding of the specific understanding or principle within the knowledge of a person of ordinary skill in the art at the time of the invention that would have supplied the motivation to modify *MacVitte* to include degradable particles. MPEP § 2143.01.

MacVitte does not teach or suggest methods comprising "a cleaning fluid comprising . . . degradable particles" as recited in independent claim 1. Instead, *MacVitte* teaches using "a suspension of irregular shaped particles of an inert organic material, such as resins or plastics." (*MacVitte* col. 1, ll. 36-38.) The particles taught by *MacVitte* must be inert: "[t]he particular organic resin or plastic employed is relatively unimportant except insofar as it relates to the desired properties of inertness with respect to the suspending liquid." (*MacVitte* col. 1, ll. 44-46.) The particles taught by *MacVitte* also must not degrade: "the liquid must not react with or dissolve the suspended particles." (*MacVitte* col. 2, ll. 4-5.) Nowhere does *MacVitte* teach or suggest the use of a degradable particle as required by independent claim 1. Thus, *MacVitte* does not teach or suggest each element of Applicants' invention and consequently cannot be used to form the basis of a *prima facie* case of obviousness.

In the "Response to Arguments," the Examiner states:

> Applicant's arguments are unpersuasive since applicant is claiming the same composition as the prior art. Therefore, since applicant is claiming the same composition as the prior art, it is unclear how applicant's composition is different form the prior art since both MacVitte and the instant specification teaches the particle comprising polycarbonate.

> Additionally, applicant's definition of degradation is not limited to the particles degrading in the presence of water. In paragraph 13, the materials can degrade when subjected to temperature treatments. Applicant's arguments are not persuasive since MacVitte teaches the same composition as that of the claimed invention. Therefore, particles in the specification may degrade, not based on the dissolution with water, but degradable by thermal treatment and since the prior art teaches that the particle is not dissolved in water, does not mean that the particle is not degraded by other means, such as thermal treatment, especially since the prior art and the instant invention are claiming the same composition.

(Office Action at 6.)

Applicants are not claiming the same composition as the prior art, as the Examiner has suggested. First, Applicants are claiming methods of cleaning that use degradable particles. Degradable particles are "capable of undergoing an irreversible degradation during or after use." (Application ¶ 12.) And once degraded, degradable particles "should not naturally, or *sua sponte* recrystallize, reconstitute, or resolidify." (Application ¶ 12.) In no way does *MacVitte* teach or suggest methods that use such degradable particles. Rather, as discussed above, *MacVitte* teaches the exact opposite—"the liquid must ***not*** react with or dissolve the suspended particles." (*MacVitte* col. 2, ll. 4-5 (emphasis added).)

The Examiner points out that polycarbonates are disclosed in both *MacVitte* and Applicants' application, and from this incorrectly concludes that *MacVitte* must therefore disclose degradable particles. *MacVitte* must be considered as a whole, and the claimed invention must be considered as a whole. MPEP § 2141.02. The claimed invention uses a cleaning fluid comprising a base fluid and degradable particles. The degradable particles may be chosen based on the degradation products formed when the degradable particles degrades (Application ¶ 18), and the base fluid "may be aqueous-based, nonaqueous-based, or mixtures thereof" (Application ¶ 22). In the context of Applicants' invention, a polycarbonate may be a degradable particle because, among other things, in the appropriate base fluid a polycarbonate degradable particle may be "capable of undergoing an irreversible degradation during or after use" (Application ¶ 12), and "not naturally, or *sua sponte* recrystallize, reconstitute, or resolidify." (Application ¶ 12.) On the other hand, *MacVitte*, when considered as a whole, teaches away from using polycarbonate as a degradable particle. MPEP § 2141.02 ("A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead

away from the claimed invention.") For example, *MacVitte* teaches that "the liquid must not react with or dissolve the suspended particles" (*MacVitte* col. 2, ll. 4-5) and that the liquid is generally water (*MacVitte* col. 2, l. 8). Accordingly, when *MacVitte* is considered as a whole, it does not teach or suggest that a polycarbonate may be used as a degradable particle.

The Examiners comments about "thermal treatment" have no relevance with regard to obviousness. To form a *prima facie* case of obviousness, the Examiner must show that *MacVitte* teaches or suggests all the claim limitations. M.P.E.P. § 2142. Instead of making this showing, the Examiner reasons that *MacVitte* teaches or suggests degradable particles because *MacVitte's* particle does not dissolve in water, but may degrade by other, undisclosed means. (Office Action at 6.) This is irrelevant because *MacVitte* does not teach or suggest the use of degradable particles. Instead, as discussed above, *MacVitte* emphasizes that the particle should not degrade, and even the fact that references ***can*** be modified does not render the resultant modification obvious unless the prior art teaches or suggests the desirability of the modification or combination, which *MacVitte* fails to do. M.P.E.P. § 2143.01.

Therefore, Applicants respectfully assert that claim 1 is not novel and nonobvious over *MacVitte* because the Examiner has failed to establish a *prima facie* case of obviousness as required by MPEP § 2142. Claims 2-3, 5, 14, and 18 depend either directly or indirectly from independent claim 1. "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious." MPEP § 2143.03. Accordingly, Applicants respectfully request withdrawal of the rejection under 35 U.S.C. § 103(a) with respect to claims 1-3, 5, 14, and 18, and further request the timely issuance of a Notice of Allowance for these claims.

SUMMARY

In light of the above remarks, Applicants respectfully request reconsideration and withdrawal of the outstanding objections and rejections. Applicants further submit that the application is now in condition for allowance, and earnestly solicit timely notice of the same. Should the Examiner have any questions, comments, or suggestions in furtherance of the prosecution of this application, the Examiner is invited to contact the attorney of record by telephone, facsimile, or electronic mail.

Applicants believe that there are no fees due in association with this filing of this Amendment and Response. However, should the Commissioner deem that any fees are due,

including any fees for extensions of time, Applicants respectfully request that the Commissioner accept this as a Petition Therefor, and direct that any additional fees be charged to Halliburton Energy Services, Inc. Deposit Account No. 08-0300.

Respectfully submitted,

By: _____

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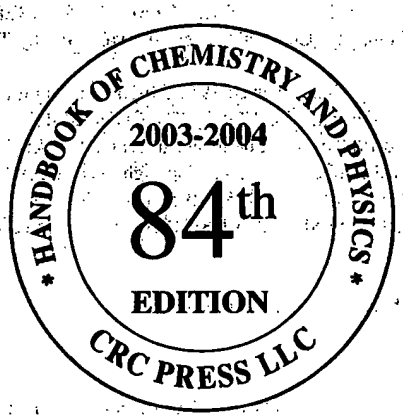

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SOLUBILITY PRODUCT CONSTANTS

The solubility product constant K_{sp} is a useful parameter for calculating the aqueous solubility of sparingly soluble compounds under various conditions. It may be determined by direct measurement or calculated from the standard Gibbs energies of formation $\Delta_f G°$ of the species involved at their standard states. Thus if $K_{sp} = [M^+]^m [A^-]^n$ is the equilibrium constant for the reaction

$$M_mA_n(s) \rightleftharpoons mM^+(aq) + nA^-(aq),$$

where M_mA_n is the slightly soluble substance and M^+ and A^- are the ions produced in solution by the dissociation of M_mA_n, then the Gibbs energy change is

$$\Delta G° = m\,\Delta_f G°\,(M^+,aq) + n\,\Delta_f G°\,(A^-,aq) - \Delta_f G°\,(M_mA_n, s)$$

The solubility product constant is calculated from the equation

$$\ln K_{sp} = -\Delta G°/RT$$

The first table below gives selected values of K_{sp} at 25°C. Many of these have been calculated from standard state thermodynamic data in References 1 and 2; other values are taken from publications of the IUPAC Solubility Data Project (References 3 to 7).

The above formulation is not convenient for treating sulfides because the S^{-2} ion is usually not present in significant concentrations (see Reference 8). This is due to the hydrolysis reaction

$$S^{-2} + H_2O \rightleftharpoons HS^- + OH^-$$

which is strongly shifted to the right except in very basic solutions. Furthermore, the equilibrium constant for this reaction, which depends on the second ionization constant of H_2S, is poorly known. Therefore it is more useful in the case of sulfides to define a different solubility product K_{spa} based on the reaction

$$M_mS_n(s) + 2H^+ \rightleftharpoons mM^+ + nH_2S\ (aq)$$

Values of K_{spa}, taken from Reference 8, are given for several sulfides in the auxiliary table following the main table. Additional discussion of sulfide equilibria may be found in References 7 and 9.

REFERENCES

1. Wagman, D.D., Evans, W.H., Parker, V.B., Schumm, R.H., Halow, I., Bailey, S.M., Churney, K.L., and Nuttall, R.L., *The NBS Tables of Chemical Thermodynamic Properties, J. Phys. Chem. Ref. Data*, Vol. 11, Suppl. 2, 1982.
2. Garvin, D., Parker, V.B., and White, H.J., *CODATA Thermodynamic Tables*, Hemisphere, New York, 1987.
3. *Solubility Data Series* (53 Volumes), International Union of Pure and Applied Chemistry, Pergamon Press, Oxford, 1979—1992.
4. Clever, H.L., and Johnston, F.J., *J. Phys. Chem. Ref. Data*, 9, 751, 1980.
5. Marcus, Y., *J. Phys. Chem. Ref. Data*, 9, 1307, 1980.
6. Clever, H.L., Johnson, S.A., and Derrick, M.E., *J. Phys. Chem. Ref. Data*, 14, 631, 1985.
7. Clever, H.L., Johnson, S.A., and Derrick, M.E., *J. Phys. Chem. Ref. Data*, 21, 941, 1992.
8. Myers, R.J., *J. Chem. Educ.*, 63, 687, 1986.
9. Licht, S., *J. Electrochem. Soc.*, 135, 2971, 1988.

Compound	Formula	K_{sp}
Aluminum phosphate	$AlPO_4$	$9.84 \cdot 10^{-21}$
Barium bromate	$Ba(BrO_3)_2$	$2.43 \cdot 10^{-4}$
Barium carbonate	$BaCO_3$	$2.58 \cdot 10^{-9}$
Barium chromate	$BaCrO_4$	$1.17 \cdot 10^{-10}$
Barium fluoride	BaF_2	$1.84 \cdot 10^{-7}$
Barium hydroxide octahydrate	$Ba(OH)_2 \cdot 8H_2O$	$2.55 \cdot 10^{-4}$
Barium iodate	$Ba(IO_3)_2$	$4.01 \cdot 10^{-9}$
Barium iodate monohydrate	$Ba(IO_3)_2 \cdot H_2O$	$1.67 \cdot 10^{-9}$
Barium molybdate	$BaMoO_4$	$3.54 \cdot 10^{-8}$
Barium nitrate	$Ba(NO_3)_2$	$4.64 \cdot 10^{-3}$
Barium selenate	$BaSeO_4$	$3.40 \cdot 10^{-8}$
Barium sulfate	$BaSO_4$	$1.08 \cdot 10^{-10}$
Barium sulfite	$BaSO_3$	$5.0 \cdot 10^{-10}$
Beryllium hydroxide	$Be(OH)_2$	$6.92 \cdot 10^{-22}$
Bismuth arsenate	$BiAsO_4$	$4.43 \cdot 10^{-10}$

SOLUBILITY PRODUCT CONSTANTS (continued)

Compound	Formula	K_{sp}
Bismuth iodide	BiI_3	$7.71 \cdot 10^{-19}$
Cadmium arsenate	$Cd_3(AsO_4)_2$	$2.2 \cdot 10^{-33}$
Cadmium carbonate	$CdCO_3$	$1.0 \cdot 10^{-12}$
Cadmium fluoride	CdF_2	$6.44 \cdot 10^{-3}$
Cadmium hydroxide	$Cd(OH)_2$	$7.2 \cdot 10^{-15}$
Cadmium iodate	$Cd(IO_3)_2$	$2.5 \cdot 10^{-8}$
Cadmium oxalate trihydrate	$CdC_2O_4 \cdot 3H_2O$	$1.42 \cdot 10^{-8}$
Cadmium phosphate	$Cd_3(PO_4)_2$	$2.53 \cdot 10^{-33}$
Calcium carbonate (calcite)	$CaCO_3$	$3.36 \cdot 10^{-9}$
Calcium fluoride	CaF_2	$3.45 \cdot 10^{-11}$
Calcium hydroxide	$Ca(OH)_2$	$5.02 \cdot 10^{-6}$
Calcium iodate	$Ca(IO_3)_2$	$6.47 \cdot 10^{-6}$
Calcium iodate hexahydrate	$Ca(IO_3)_2 \cdot 6H_2O$	$7.10 \cdot 10^{-7}$
Calcium molybdate	$CaMoO_4$	$1.46 \cdot 10^{-8}$
Calcium oxalate monohydrate	$CaC_2O_4 \cdot H_2O$	$2.32 \cdot 10^{-9}$
Calcium phosphate	$Ca_3(PO_4)_2$	$2.07 \cdot 10^{-33}$
Calcium sulfate	$CaSO_4$	$4.93 \cdot 10^{-5}$
Calcium sulfate dihydrate	$CaSO_4 \cdot 2H_2O$	$3.14 \cdot 10^{-5}$
Calcium sulfite hemihydrate	$CaSO_3 \cdot 0.5H_2O$	$3.1 \cdot 10^{-7}$
Cesium perchlorate	$CsClO_4$	$3.95 \cdot 10^{-3}$
Cesium periodate	$CsIO_4$	$5.16 \cdot 10^{-6}$
Cobalt(II) arsenate	$Co_3(AsO_4)_2$	$6.80 \cdot 10^{-29}$
Cobalt(II) hydroxide (blue)	$Co(OH)_2$	$5.92 \cdot 10^{-15}$
Cobalt(II) iodate dihydrate	$Co(IO_3)_2 \cdot 2H_2O$	$1.21 \cdot 10^{-2}$
Cobalt(II) phosphate	$Co_3(PO_4)_2$	$2.05 \cdot 10^{-35}$
Copper(I) bromide	$CuBr$	$6.27 \cdot 10^{-9}$
Copper(I) chloride	$CuCl$	$1.72 \cdot 10^{-7}$
Copper(I) cyanide	$CuCN$	$3.47 \cdot 10^{-20}$
Copper(I) iodide	CuI	$1.27 \cdot 10^{-12}$
Copper(I) thiocyanate	$CuSCN$	$1.77 \cdot 10^{-13}$
Copper(II) arsenate	$Cu_3(AsO_4)_2$	$7.95 \cdot 10^{-36}$
Copper(II) iodate monohydrate	$Cu(IO_3)_2 \cdot H_2O$	$6.94 \cdot 10^{-8}$
Copper(II) oxalate	CuC_2O_4	$4.43 \cdot 10^{-10}$
Copper(II) phosphate	$Cu_3(PO_4)_2$	$1.40 \cdot 10^{-37}$
Europium(III) hydroxide	$Eu(OH)_3$	$9.38 \cdot 10^{-27}$
Gallium(III) hydroxide	$Ga(OH)_3$	$7.28 \cdot 10^{-36}$
Iron(II) carbonate	$FeCO_3$	$3.13 \cdot 10^{-11}$
Iron(II) fluoride	FeF_2	$2.36 \cdot 10^{-6}$
Iron(II) hydroxide	$Fe(OH)_2$	$4.87 \cdot 10^{-17}$
Iron(III) hydroxide	$Fe(OH)_3$	$2.79 \cdot 10^{-39}$
Iron(III) phosphate dihydrate	$FePO_4 \cdot 2H_2O$	$9.91 \cdot 10^{-16}$
Lanthanum iodate	$La(IO_3)_3$	$7.50 \cdot 10^{-12}$
Lead(II) bromide	$PbBr_2$	$6.60 \cdot 10^{-6}$
Lead(II) carbonate	$PbCO_3$	$7.40 \cdot 10^{-14}$
Lead(II) chloride	$PbCl_2$	$1.70 \cdot 10^{-5}$
Lead(II) fluoride	PbF_2	$3.3 \cdot 10^{-8}$
Lead(II) hydroxide	$Pb(OH)_2$	$1.43 \cdot 10^{-20}$
Lead(II) iodate	$Pb(IO_3)_2$	$3.69 \cdot 10^{-13}$
Lead(II) iodide	PbI_2	$9.8 \cdot 10^{-9}$
Lead(II) selenate	$PbSeO_4$	$1.37 \cdot 10^{-7}$
Lead(II) sulfate	$PbSO_4$	$2.53 \cdot 10^{-8}$
Lithium carbonate	Li_2CO_3	$8.15 \cdot 10^{-4}$
Lithium fluoride	LiF	$1.84 \cdot 10^{-3}$
Lithium phosphate	Li_3PO_4	$2.37 \cdot 10^{-11}$
Magnesium carbonate	$MgCO_3$	$6.82 \cdot 10^{-6}$
Magnesium carbonate trihydrate	$MgCO_3 \cdot 3H_2O$	$2.38 \cdot 10^{-6}$
Magnesium carbonate pentahydrate	$MgCO_3 \cdot 5H_2O$	$3.79 \cdot 10^{-6}$
Magnesium fluoride	MgF_2	$5.16 \cdot 10^{-11}$
Magnesium hydroxide	$Mg(OH)_2$	$5.61 \cdot 10^{-12}$
Magnesium oxalate dihydrate	$MgC_2O_4 \cdot 2H_2O$	$4.83 \cdot 10^{-6}$